



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

JUN 19 2000

400 Seventh Street, S.W.  
Washington, D.C. 20590

DOT-E 8944  
(TENTH REVISION)

EXPIRATION DATE: April 30, 2002

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Praxair, Inc.  
Danbury, CT

(See Appendix A for a list of additional grantees)

2. PURPOSE AND LIMITATION:

a. This exemption authorizes the transportation in commerce of gases in DOT 3AAX or 3T cylinders that are retested by means other than the hydrostatic retest required in § 173.34(e). This exemption provides no relief from any Hazardous Materials Regulation other than as specifically stated herein.

b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.34(e) in that an alternative retest method is authorized in place of the required hydrostatic pressure test as described herein; § 173.302(c)(2), (3) and (4), for certain requirements related to special filling limits.
5. BASIS: This exemption is based on the application of Praxair, Inc., dated April 7, 2000, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous materials description -- proper shipping name	Hazard Class/ Division	Identi- fication Number	Packing Group
The various flammable and non-flammable gases authorized in DOT 3AAX and 3T specification cylinders	as appro- priate	as appro- priate	n/a

7. PACKAGING AND SAFETY CONTROL MEASURES:

a. Packaging prescribed is a DOT 3AAX or 3T cylinder, mounted on a tube trailer vehicle chassis or a tube module equipped with an ISO frame. The cylinder must have a minimum wall thickness of not less than 0.400 inch. Each cylinder must be retested and accepted in accordance with the test procedure specified in the application and as prescribed in this paragraph, in place of that prescribed in § 173.34(e).

b. Signal processor gain must be set so that total system gain is 80 dB. Signal processor threshold level must be set at 32 dB. Each acoustic emission (AE) site that produces five or more valid events must be subjected to an ultrasonic or a radiographic examination. AE sites on the cylindrical portion of each tube which produce five or more events within an 8 inch axial distance and AE sites on tube ends which produce five or more events which hit both sensors and which had 43 dB or greater peak amplitude at the "first hit" sensor must be subjected to an ultrasonic or a radiographic examination. Recording of AE data must start when tube pressure reaches the lesser of 1,000 psig or 60 percent of normal fill pressure, and end when cylinder pressure reaches the greater of 110 percent of either the marked service pressure or allowable fill pressure.

c. Each person who performs retesting in accordance with the AE test procedure authorized by this exemption must be a "qualified tester". The term "qualified tester" as used in this exemption means a person who meets either paragraph 7.c.(1) or 7.c.(2) of this exemption.

(1) A person who holds an engineering degree from an accredited college or university and has at least:

(i) 5 years continuous experience in: (A) the design, fabrication, maintenance, testing and inspection of pressure vessels or DOT specification cylinders or; (B) metallurgy; or (C) non-destructive testing of pressure vessels, or any combination thereof; and

(ii) 50 hours of experience in acoustic emission testing of pressure vessels or DOT specification cylinders; and

(iii) 20 hours of experience in ultrasonic testing in accordance with the method specified in ASTM A-388-67.

(2) A person who performs such testing under the general supervision of one qualified under paragraph c(1) above (whether or not at the same location). Such person must have:

(i) (A) at least 5 years continuous experience of a technical nature involving DOT specification cylinders or pressure vessels; or (B) successfully completed at least 10 semester hours of a scientific or technical curriculum and has at least 2 years continuous experience of the same technical nature; and

(ii) received at least: (A) 40 hours of training or instruction in AE testing of pressure vessels or DOT specification cylinders and must have at least 80 hours of experience in such testing under the personal supervision of a person qualified under paragraph c(1) above; (B) 40 hours of training or instruction in ultrasonic testing; and (C) 10 additional hours of experience in such testing under the direct, personal supervision of a person qualified under paragraph c(1) above.

8. SPECIAL PROVISIONS:

a. A statement of qualifications, for each "qualified tester" used under this exemption and information in support thereof, must be maintained by Praxair, Inc. The location

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of this statement, for each "qualified tester", must be identified to the Office of Hazardous Materials Exemptions and Approvals (OHMEA).

b. Cylinders retested in accordance with paragraph 7 above may be charged to 110 percent of marked service pressure in accordance with § 173.302(c) except that paragraphs (2), (3) and (4) do not apply.

c. The exterior of the trailer cabinet of the vehicle chassis to which the cylinders are affixed must be marked with letters at least 2 inches high on a contrasting background "DOT-E 8944".

d. An exterior tube on each side of a tube module must be marked with letters at least 2 inches high on a contrasting background "DOT-E 8944".

e. The current retest date must be marked on the rear bulkhead inside the trailer cabinet at approximately eye level above the withdrawal valve for tube trailers and on the bulkhead near the withdrawal valve for tube modules. In the event retest dates of cylinders differ in a trailer cluster, the retest date displayed will be that of the oldest retest date, meaning the date of the retest that must occur first.

f. The quantity of cylinders not owned or leased by Praxair, Inc., or any of its subsidiaries which are retested in accordance with this exemption may not exceed an average of fifty (50) in each calendar month or portion thereof during the continuance of this exemption.

g. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.

h. A person who is not a holder of this exemption, but receives a package covered by this exemption, may reoffer it for transportation provided no modifications or changes are made to the package and it is offered for transportation in conformance with this exemption and the HMR.

i. A current copy of this exemption must be maintained at each facility where the package is requalified or offered for transportation.

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9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo vessel.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried on each motor vehicle or cargo vessel used to transport packages covered by this exemption.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
  - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.200 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The following information must be reported to the Associate Administrator for Hazardous Materials Safety:
- a. The name of each person qualified to conduct testing under paragraph 7.c. before use as a "qualified tester".
  - b. Location of each facility where testing under this exemption is conducted.
  - c. The date of first test and a report each 6 months thereafter indicating the number of cylinders tested under this exemption and identification by serial number of those passing and those failing to pass the test authorizing by this exemption.
    - (1) DOT specification number.
    - (2) Maximum allowable filling pressure.
    - (3) Minimum prescribed sidewall.

- (4) Number of events at each location.
- (5) Pressure associated with each event.
- (6) Description of each AE event (amplitude, duration, energy, etc.).
- (7) Size of each defect measured (length and depth).
- (8) Type of each defect measured (crack, pitting, etc.).
- (9) Defect location relative to each sensor.
- (10) Defect location relative to sidewall (interior, outer surface, inner surface).

The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption). In addition, the holder(s) of this exemption must inform the AAHMS, in writing, of any incident involving the package and shipments made under the terms of this exemption.

Issued at Washington, D.C.:

*Ann Mazzullo*

*for* Robert A. McGuire  
Acting Associate Administrator  
for Hazardous Materials Safety

~~JUN 19 2000~~  
(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.  
Attention: DHM-31.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: AM

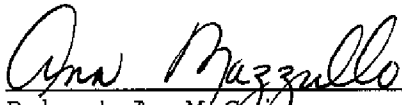
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The following are hereby granted party status to this exemption based on their application(s) submitted in accordance with § 107.107 or § 107.109, as appropriate:

Company Name City/State	Application Date	Issue Date	Expiration Date
Praxair Puerto Rico, Inc., Gurabo, PR	Apr 4, 2000	JUN 19 2000	Apr 30, 2002



for Robert A. McGuire  
Acting Associate Administrator for  
Hazardous Materials Safety